

**CARLOWRIGHTIA MCVAUGHII: A POLYMORPHIC SPECIES
FROM SOUTHWESTERN MEXICO**

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Carlowrightia (Acanthaceae) is a relatively small genus of shrubs and perennial subshrubs which range from the southwestern United States into northern Costa Rica. During my study of this genus, it became apparent that several collections from southwestern Mexico represented an undescribed and highly variable species.

Carlowrightia mcvaughii T. F. Daniel, sp. nov.

Figs. 1-2.

Planta suffruticosa, usque ad 1 m alta. Caules glabri vel pubescentes. Folia petiolata vel subsessilia; petioli (0.5-) 1-4 mm longi; laminae ovatae vel cordiformes, (20-) 30-70 mm longae, (7-) 15-40 mm latae, 1.3-2.8-plo longiorae quam latiorae. Inflorescentia thyrsiformis usque ad 30 cm longa; thyrsus saepe glandulosus. Flores pedicellis 0.5-4 (-7) mm longis. Calyx quinquelobus, (4-) 5-7 (-10) mm longus. Corolla alba, pallide rosea, vel pallide purpurea, 13-16 mm longa. Capsula glabra, 10-13 mm longa. Semina ovalia, 4.8-5.5 longa, 3.5-4.2 mm lata; testa granulata, tuberculata.

Erect to spreading suffrutescent perennial to 1 m tall, arising from a stout to tortuous woody caudex to 15 mm in diameter or a woody rhizome to 8 mm in diameter. Numerous woody roots originating from the caudex. Older stems woody, glabrate. Younger stems green or purplish, ridge-angled to quadrate (to terete) below, terete to multistriate above, essentially glabrous to variously pubescent, frequently with a strigillose-pubescent understory, the trichomes eglandular, erect to retrorse, 0.05-0.2 mm long, and a strigose overstory of infrequent to dense, flexuous trichomes to 1.5 mm long, or with one layer of pubescence greatly elaborated with respect to the other. Lower internodes (20-) 60-90 mm long, upper internodes 35-60 mm long. Leaves ascendant, petiolate to subsessile. Petioles (0.5-) 1-4 mm long, pubescent like younger stems. Laminae ovate to cordiform, (acute) truncate to subcordate to cordate at base, acuminate to acute at apex, (20-) 30-70 mm long, (7-) 15-40 mm wide, 1.3-2.8 times longer than wide, reduced acropetally into lanceolate to linear-subulate bracts, 2-12 mm long, 0.5-3.5 mm wide; margins entire, flat, strigose-ciliate, the trichomes bent, 0.5-1.5 mm long; laminar surfaces minutely puberulent to densely strigose; several orders of venation evident on both surfaces. Inflorescence a terminal, leafy thyse to 30 cm long; thyse axis either glabrous, strigose-pubescent with eglandular, retrorse to erect trichomes, 0.05-0.5 mm long, or strigose-pubescent with an overstory of scattered to dense, capitate glands, 0.3-0.8 mm long. Flowers in lateral dichasia to 10 cm long, pedicellate from the axil of 2 bractlets, the pedicels 0.5-4 (-7) mm long. Bractlets of the dichasia 1.5-16 mm long, 0.3-5 cm wide, the lowermost lanceolate, the uppermost linear-subulate. Calyx deeply 5-lobed, (4-) 5-7 (-11) mm long, pubescent like inflorescence axis; tube 0.5-2 mm long; lobes subulate, 3.5-8 (-9.5) mm long. Corolla bilabiate, whitish to light pink or light purple with 2 faint, rose-colored lines on the upper lip, 13-16 mm long, strigillose on outer surface; tube 3.5-4 mm long, 1.5-2 mm in diameter; upper lip spatulate, 9-11.5 mm long, 2-3 mm wide, entire at apex; lower lip 10-12.5 mm long, trilobate, the lobes obovate-elliptical, 7-8.5 mm long, 2-3 mm wide. Stamens 8-8.5



FIG. 1. *Carlwrightia mcvaughii*, drawn from the type by Karin Douthit. a-b, habit $\times 0.5$; c, calyx $\times 5$; d, open capsule $\times 3.5$; e, seed $\times 5$; f, disc and ovary $\times 10$; g, style apex and stigma $\times 50$; h, corolla with upper lip removed, showing insertion of stamens $\times 3$; i, anther $\times 10$.

mm long; filaments becoming distinct from the corolla just below the lobes on the lower lip, 7–7.5 mm long, glabrous or pubescent especially near the base, the trichomes 0.1–0.2 mm long; thecae parallel, subequally inserted on filament, 1.5–2 mm long. Disc 0.7–0.8 mm long. Ovary glabrous; style terminal, 10–14 mm long, glabrous or pubescent especially near the base, the trichomes 0.1–0.4 mm long; stigma terminal on style, capitate to minutely bilobed, the lobes to 0.2 mm long. Capsules stipitate, 10–13 mm long, glabrous, scabridulous; stipe 3–5 mm long; head elliptical, laterally compressed, 7–8 mm long, including a terminal beak to 1 mm long; retinacula 2 mm long. Seeds usually 2 per capsule, white or turning black when mature, oval, laterally compressed, obliquely notched at chalazal end, 4.8–5.5 mm long, 3.5–4.2 mm wide; testa granulate, tuberculate; margins dentate.

Type: MEXICO. Jalisco: Precipitous S-facing mountainsides 4 miles NNE of Talpa de Allende, elev. 1450–1500 m, 12–13 Oct 1960 flr & frt. *McVaugh 20105* (MICH, holotype).

Flowering: August through November and probably sporadically during other months as well. Fruiting occurs simultaneously.

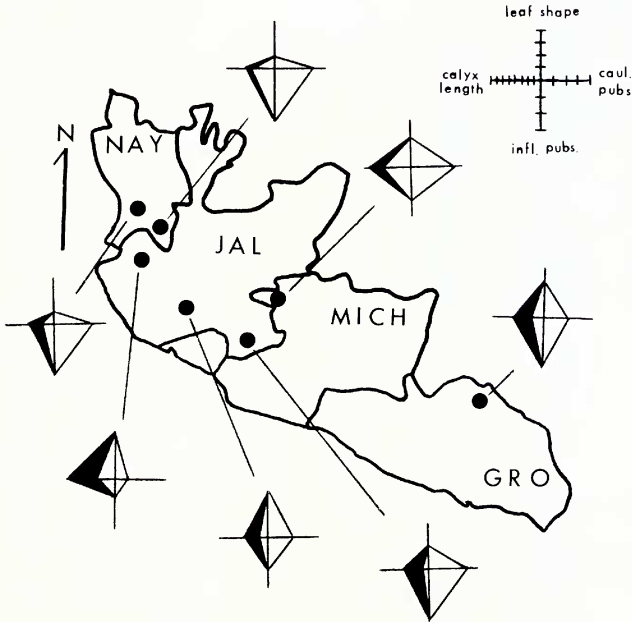


FIG. 2. Distribution and variation of *Carlowrightia mcvaughii*. See text for explanation.

Distribution and habitat: *Carlowrightia mcvaughii* is known to occur from southern Nayarit southeastward along the western escarpment of the Sierra Madre Occidental in Jalisco and eastward into Michoacán and Guerrero. The species is found sporadically to abundantly on wooded slopes in the sandy or clay loams of the oak forest zone at elevations of 1100 to 2000 meters.

Although *Carlowrightia* is primarily a genus of arid and semiarid associations, *C. mcvaughii* appears to be a mesophyte. It differs from other species in the genus by the combination of its large, ovate to cordiform leaves, well-developed and leafy thyrses, long calyces, white to light pink or purple corollas, and oval, tuberculate seeds. With respect to certain features, specimens of *C. mcvaughii* illustrate a high degree of variation. Figure 2 shows the variation of character states (in each case proceeding from the center of the axis to its periphery) encountered in seven specimens of *C. mcvaughii* with respect to the following characters: range of calyx length (4–11 mm), leaf shape (ovate, ovate to subcordiform, subcordiform to cordiform, cordiform), cauline pubescence (glabrous, understorey pubescence with little or no overstorey pubescence, understorey and overstorey pubescence, overstorey pubescence with little or no understorey pubescence), and inflorescence pubescence (glabrous, eglandular-pubescent, glandular-pubescent). Vestiture shown on the polygons, the styles and filaments may be glabrous, partially pubescent, or entirely pubescent. The pubescence of these structures, however, is often variable from flower to flower on the same plant.

Despite the polymorphism exhibited by *C. mcvaughii*, no intraspecific taxa are recognized since the variation cannot be correlated geographically, ecologically, or altitudinally. Indeed the variability of *C. mcvaughii* is similar to that found in certain other species of the genus.

Additional specimens: Nayarit: Mountains 9 mi N of Compostela, elev. 1000–1200 m, 27 Aug 1957, *McVaugh 16456* (MICH); mountains 10 mi SE of Ahuacatlán, on road to Barranca del Oro, elev. 1100–1300 m, 11–12 Aug 1959, *Feddema 401* (MICH). Jalisco: Precipitous slopes, eastern foothills of the Sierra del Halo, ca 11–12 km W of Jilotlán de los Dolores, elev. 1300 m, 21 Nov 1970, *McVaugh 24583* (MICH); 13 km S de El Chante, mpio. Autlán, sobre el camino al Aseradero Tecopatlán, elev. 1450 m, 25 Aug 1976, *Rzedowski & McVaugh 1304* (ENCB, MICH). Michoacán: Cerro Santa María, 8–10 km SW of Jiquilpan and ca 5 km NE of Quitupan, elev. ca 2000 m, 8–9 Aug 1959, *Feddema 173* (MICH). Guerrero: Taxco, 21 Jul 1932, *Abbott 290* (GH); Taxco, 31 Aug 1932, *Abbott 369* (GH).

This species is named in honor of Dr. Rogers McVaugh, who recognized it as undescribed several years ago.